



EFFECT OF CIRCUIT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG PHYSICAL EDUCATION STUDENTS

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Abstract:

The purpose of the study was to find out the effect of circuit training on selected physical fitness variables among physical education students. It was hypothesized that there would be significant differences on selected physical fitness variables due to the effect of circuit training among physical education students. For the present study the 30 male physical education students from Alagappa University College of Physical Education, Karaikudi, Tamilnadu were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent circuit training and Group 'B' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying dependent 't' test. The level of significance was set at 0.05. The circuit training had positive impact on muscular endurance and flexibility among physical education students.

Key Words: Circuit Training, Muscular Endurance & Flexibility

Introduction:

Circuit training is an efficient and challenging form of conditioning. It works well for developing strength, endurance (both aerobic and anaerobic), flexibility and coordination. Its versatility has made it popular with the general Public right through to elite athletes. For sports men and women, it can be used during the closed season and early pre-season to help develop a solid base of fitness and prepare the body for more stressful subsequent training. Circuit training is an effective organizational form of doing physical exercises for improving all physical fitness components. Before and after training, the initial and final tests were conducted for the variables such as speed, agility, power, co-ordination, static balance and dynamic balance for the experimental and control groups. Circuit training is an exercise program that develops overall fitness. Performed regularly, circuit training will simultaneously improve muscular strength, endurance, cardiovascular fitness, and flexibility. Circuit training was invented in 1953 as an efficient way for coaches to train many athletes in a limited amount of time with limited equipment. The exerciser moved through a series of weight training or calisthenics arranged consecutively. It was a fast-paced workout of 15 to 45 seconds per station with little (15 to 30 seconds) or no rest between stations. Today, this is known as "circuit weight training". Research has shown that it can increase muscular strength and endurance. There is a mild improvement in aerobic stamina but only if the rest periods are kept very short (Antonio et al. 2013).

Methodology:

The purpose of the study was to find out the effect of circuit training on selected physical fitness variables among physical education students. It was hypothesized that there would be significant differences on selected physical fitness variables due to the effect of circuit training among physical education students. For the present study the 30 male physical education students from Alagappa University College of Physical Education, Karaikudi, Tamilnadu were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent circuit training and Group 'B' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying dependent 't' test. The level of significance was set at 0.05.

Table 1: Variables and Test

S.No	Variables	Tests
1	Muscular Endurance	Sit Ups
2	Flexibility	Sit and Reach

Results:

The findings pertaining to analysis of dependent 't' test between experimental group and control group on selected physical fitness variables among physical education students for pre-post test respectively have been presented in table 2 to 3.

Table 2: Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Circuit Training Group (CTG)

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean Difference	Std. Dev (±)	σ DM	't' Ratio
1	Muscular Endurance	34.50	41.15	6.65	1.58	0.41	14.02*
2	Flexibility	40.14	46.11	5.97	1.18	0.26	20.11*

* Significant at 0.05 level

Table 2 shows the obtained 't' ratios for pre and post test mean difference in the selected variable of muscular endurance (14.02) and flexibility (20.11). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were significantly improved in physical fitness variables namely muscular endurance (6.65, $p < 0.05$) and flexibility (25.97, $p < 0.05$) thus the formulated hypothesis is accepted.

Figure 1: Comparisons of Pre – Test Means and Post – Test Means for Experimental Group Relation to Physical Fitness Variables

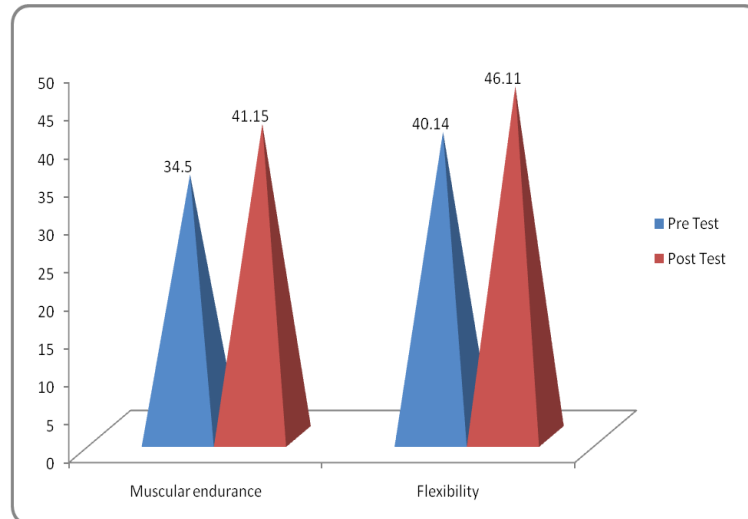


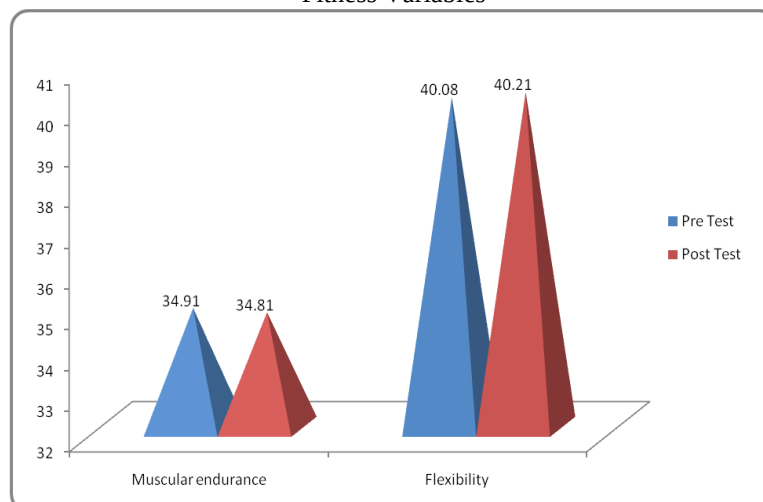
Table 3: Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Control Group (CG)

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean Difference	Std. Dev (±)	σ DM	't' Ratio
1	Muscular Endurance	34.91	34.81	0.10	1.43	0.36	0.16
2	Flexibility	40.08	40.21	0.13	1.11	0.27	0.61

* Significant at 0.05 level

Table 3 shows the obtained 't' ratios for pre and post test mean difference in the selected variable of muscular endurance (0.16) and flexibility (0.61). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were not significantly improved in physical fitness variables muscular endurance (0.10, $p > 0.05$) and flexibility (0.13, $p > 0.05$).

Figure 2: Comparisons of Pre – Test Means and Post – Test Means for Control Group in Relation to Physical Fitness Variables



Discussions on Findings:

In case of physical fitness variables i.e. muscular endurance and flexibility power the results between pre and post test has been found significantly higher in experimental group in comparison to control group. The findings of the present study have strongly indicates that circuit training of six weeks have significant effect on selected physical fitness variables i.e., muscular endurance and flexibility of physical education students. Hence the hypothesis earlier set that circuit training programme would have been significant effect on selected physical fitness variables in light of the same the hypothesis was accepted.

Conclusion:

On the basis of findings and within the limitations of the study the following conclusions were drawn:

- ✓ The circuit training had positive impact on muscular endurance and flexibility among physical education students.
- ✓ The experimental group showed better improvement on muscular endurance and flexibility among physical education students than the control group.

References:

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